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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,037	09/27/2001	Richard C. Chu	POU920010085US1	2577

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EXAMINER

PATEL, NIHIR B

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/965,037		CHU ET AL.	
	Examiner		Art Unit	
	Nihir Patel		3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on March 20th, 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-12 and 24-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims **1, 4-12 and 24-30** have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim **1** is rejected under 35 U.S.C. 102(b) as being anticipated by Meijer et al. (US 4,785,875).

Referring to claim 1, Meijer discloses a heat pipe working liquid distribution system that comprises a heat sink **12 (see figure 1)** structure, the heat sink base structure having a coolant inlet **20 (see figure 1)** for receiving a coolant, wherein the heat sink base structure defines at least one coolant channel disposed so as to be communicated with the coolant inlet (**see figure 1**); and a coolant distribution structure (**see figure 2**), wherein the coolant distribution structure defines at least one distribution cavity and includes at least one distribution inlet communicated with the distribution cavity and wherein the coolant distribution structure is disposed relative to the heat sink base structure such that the distribution inlet is communicated with the coolant inlet (**see figure 2**); wherein the coolant distribution structure is constructed of porous material (**see figure 1**), the coolant entering the coolant inlet **20** and exiting the heat sink through pores of the porous material (**see figure 1**).

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Referring to claim 5, Meijer discloses a heat pipe working liquid distribution system that comprises a heat sink 12 (see figure 1) structure, the heat sink base structure having a coolant inlet 20 (see figure 1) for receiving a coolant and a coolant outlet 18 (see figure 1), wherein the heat sink base structure defines at least one coolant channel disposed so as to be communicated with the coolant inlet and outlet 18 (see figure 1); and a coolant distribution structure (see figure 2), wherein the coolant distribution structure defines at least one distribution cavity and includes at least one distribution inlet communicated with the distribution cavity and wherein the coolant distribution structure is disposed relative to the heat sink base structure such that the distribution inlet is communicated with the coolant inlet (see figure 1); further comprising a distribution outlet communicated with the distribution cavity, a heat transfer surface and a module attachment structure, wherein the module attachment structure nonmovably associated with the module attachment structure.

Referring to claim 6, Meijer discloses an apparatus wherein the heat transfer surface is disposed relative to the module attachment structure so as to be communicated with the distribution outlet and the plurality of module channels.

Referring to claim 7, Meijer discloses an apparatus that further comprises a coolant distribution device disposed within the plurality of module channels so as to be communicated with the distribution outlet and the heat transfer surface (see figure 1 and 2).

Referring to claim 8, Meijer discloses an apparatus wherein the coolant distribution device is constructed of a wicking material.

Referring to claim 10, Meijer discloses an apparatus wherein the heat transfer surface is constructed of porous material (see figure 1).

Referring to claim 24, Meijer discloses a heat pipe working liquid distribution system that comprises a heat sink 12 (see figure 1) structure, the heat sink base structure having a coolant inlet 20 (see figure 1) for receiving a coolant (see figure 1), wherein the heat sink base structure defines at least one coolant channel disposed so as to be communicated with the coolant inlet 20 (see figure 1); and a coolant distribution structure 64 (see figure 1), wherein the coolant distribution structure defines at least one distribution cavity and includes at least one distribution inlet communicated with the distribution cavity and wherein the coolant distribution structure is disposed relative to the heat sink base structure such that the distribution inlet is communicated with the coolant inlet (see figure 2); further comprising a distribution outlet communicated with the distribution cavity, a heat transfer surface and a module attachment structure, wherein the module attachment structure includes a plurality of module channels and wherein the heat transfer surface is a porous material, the coolant exiting the module channels through pores of the heat transfer surface (see figures 1 and 2).

Referring to claim 25, Meijer discloses an apparatus wherein the heat transfer surface is a relative to the module attachment structure so s to be communicated with the distribution outlet and the plurality of module channels.

Referring to claim 26, Meijer discloses an apparatus that further comprises a coolant distribution device disposed within the plurality channels so as to be communicated with the distribution outlet and the heat transfer surface (see figures 1 and 2).

Referring to claim 27, Meijer discloses an apparatus wherein the coolant distribution device is constructed of a wicking material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 11, 12, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meijer et al. (US 4,785,875) in view of Newton et al. (US 6,437,981).

Referring to claims 4, 11, 12, 29 and 30, Meijer discloses the applicant's invention as claimed with the exception of providing a heat sink base, heat transfer device and module attachment structure that is constructed of copper. Newton discloses a thermally enhanced microcircuit package and method of forming same that does provide a heat sink base, heat transfer device and module attachment structure that is constructed of copper. Therefore it would have been obvious to modify Meijer's invention by providing a heat sink base, heat transfer device and module attachment structure that is constructed of copper as taught by Newton in order to improve the heat transfer process.

Referring to claims 9 and 28, the applicant claims that the coolant distribution device is cotton string. The examiner has reviewed the applicant's specification and has found that the applicant has not established any criticality on why the coolant distribution device must be cotton string and therefore considers it an engineering design choice.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nihir Patel whose telephone number is (571) 272-4803. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful the examiner supervisor Henry Bennett can be reached at (571) 272 4791.

NP
May 25th, 2005


Henry Bennett
Supervisory Patent Examiner
Group 3700